RMP
Corporate Capabilities
Request

November 1998

U.S. Department of the Interior
Minerals Management Service
Royalty Management Program

RMP Corporate Capabilities Request

November 1998

Department of the Interior
Minerals Management Service

Table of Contents

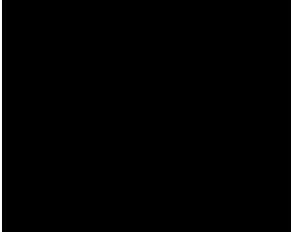# Table of Contents (Cont'd)

Table of Contents (Cont'd)

1 Introduction

1.1 Introduction

The Royalty Management Program (RMP) of the Minerals Management Service (MMS) has, over the last several years, conducted a thorough evaluation of its existing operations and business processes. This effort defined a strategic direction for the 21st century and established an agenda for changing RMP's work place environment, business processes, and information technology (IT). The RMP is now making fundamental changes—or "reengineering"— in order to implement its vision of the future and is seeking contractor assistance for this challenging endeavor.

Consequently, the RMP has published in the *Commerce Business Daily* a request for corporate capability statements. Contractors are encouraged to evaluate the *CBD* request and respond to the opportunities presented. Further information will be provided at a preproposal conference hosted by RMP subsequent to this announcement. This document was written as a companion piece to the *CBD* request to clarify RMP's current environment, strategic direction, functional requirements, and contracting approach.

1.2 Purpose

This document describes RMP's requirements in sufficient detail that potential offerors may judge their ability to satisfy RMP's needs. Through the call for corporate capabilities, RMP hopes to identify industry capabilities and obtain information from vendors on their approach to satisfying RMP's requirements. Responses to this call are not offers and do not constitute a binding contract.

The change agenda has focused on two primary business areas within RMP: royalty management accounting, and compliance and asset management. This call for corporate capabilities is the first step toward determining vendors' abilities to deliver a solution that focuses on the royalty management accounting functions within RMP, specifically to:

- Implement a solution that addresses RMP's royalty management accounting operations

- Develop an RMP data architecture and administration strategy

- Engineer integrated and interoperable financial and compliance applications with third party tools such as workflow, case management, and online analytical processing (OLAP) tools.

1.2.1 Royalty Management Accounting

Efforts to implement a financial system that addresses RMP's royalty management accounting operations will span the full systems development life cycle. This includes commercial off-the-shelf (COTS) software and the technical services necessary to engineer, implement, operate, and maintain a solution that meets RMP's requirements in four areas: financial accounting and reporting, collection and disbursement of revenues, financial exception processing and bill generation, and collection of bad debt.

RMP will give primary consideration to a COTS solution. Applications must be scalable and portable, so the solution can be delegated to eligible States and Tribes, and must use an underlying standards-based relational database management system (RDBMS) to maximize data accessibility. The COTS financial system may need to be customized somewhat, but the solution must retain the advantages of the COTS products, such as the ability to be easily upgraded by the vendor. Implementation will include acceptance testing and transition from the legacy systems and may include a period of parallel operations to ensure continuity of royalty collection and reporting. The implementation will also include system operations and maintenance (O&M), with an option to transition to an O&M contractor at a later date.

A corresponding pilot effort is under way to develop and implement applications for RMP compliance and asset management business processes. This effort focuses on RMP's improvement objectives relating to valuation methodologies used in determining lease compliance, experimentation with new workflow processes and analytical and targeting tools, and methods for supporting audit requirements.

1.2.2 Data Architecture and Administration

The second purpose of this effort is to develop an RMP enterprise-wide data architecture and administration strategy that:

- Links the royalty management accounting and compliance and asset management applications through a common data architecture

- Facilitates implementation of a central repository or warehouse for RMP data

- Continuously validates data integrity and minimizes redundancy.

The repository will contain financial information, reference data (e.g., information on leases and companies), industry data, and the monthly reported royalty and production information that will feed the revenue accounting and compliance/ asset management applications. It will also include, in a secure environment, RMP-internal and third party data, reports, and images accessible to users across the enterprise and externally (including States, other Federal agencies, and the general public). Although interoperability with other RMP applications is important, the supporting RDBMS does not necessarily have to be the same RDBMS used by the COTS financial system.

**1.2.3
Technical Support
Services**

The third purpose of this effort is to help the RMP integrate the financial management system with the compliance and asset management applications. Integration will take place over a period of up to 2 years and will blend a variety of existing and new technology-related initiatives into the overall RMP systems architecture.

Certain RMP IT initiatives and standards will be incorporated into the IT landscape supporting the reengineered business processes. These include the MMS-wide desktop standards, Microsoft Exchange infrastructure, planned Electronic Data Interchange (EDI) enhancements, Computer Output to Laser Disk (COLD), and Internet/Intranet services. In engineering solutions to specific requirements, the contractor may either incorporate RMP's existing hardware, telecommunications, database, and software infrastructure or propose changes or enhancements to meet RMP functional requirements in the most cost-effective manner.

In support of other reengineering initiatives, the contractor may be tasked to provide the expertise necessary to engineer and implement solutions using a variety of technologies. The types of technologies may include workflow, geographic information systems (GIS), or OLAP tools; a data warehouse; web applications; or others to be determined. Projects addressing some of these initiatives will be in place within the next year. It will be the contractor's responsibility to assist RMP in integrating these into the overall RMP IT environment and processes. For example, the contractor may be tasked to integrate new compliance and asset management applications and electronic commerce data feeds into the financial management system and overall IT architecture and processes.

Enumeration of the technical support services and the incremental implementation of capabilities is currently under review and will be finalized based upon vendor responses to this call for corporate capabilities. Details regarding technical support services will be included in a formal Request For Proposals (RFP).

**1.3
Procurement
Strategy**

The RMP's procurement strategy focuses on a plan aimed at delivering IT functionality on time and within budget. The approach calls for building and delivering functionality on an incremental basis. The RMP will apply a multifaceted contracting approach featuring a combination of firm-fixed price, cost reimbursable, and task order elements.

The RMP intends to award a firm-fixed price contract on or about July 1, 1999, for a COTS-based financial system and its integrated RDBMS, along with any customizing necessary to allow the system to operate in the RMP environment and meet RMP's functional requirements. The RMP prefers to minimize the amount of custom code associated with its future financial system. If extensive customizing is required, the viability of a COTS-based solution will be reassessed.

RMP is open to considering different operational scenarios for the COTS applications including, but not limited to, Government Owned and Contractor Operated, or Contractor Owned and Operated.

Other elements of the planned acquisition, depending on their complexity, will be awarded either on a firm-fixed price or cost reimbursable/task order basis. These elements include:

- Additional customizing associated with the COTS-based financial system

- Enterprise-wide data administration strategy and ongoing data administration services

- Database development and integration with the COTS-based financial system, legacy systems, and compliance applications and databases

- Development of an incremental implementation strategy to acquire, implement, and integrate other desired capabilities such as workflow, OLAP, and GIS.

Work under this effort, which includes implementation, acceptance testing, and transition/parallel operations, is expected to be completed by September 30, 2001. The contract will include two option years for operation and maintenance of the system (October 1, 2001, through September 30, 2003).

After reviewing the corporate capabilities statements, the RMP will advise respondents regarding their eligibility to respond to an RFP that will be issued at the end of February 1999. The RFP will provide more detailed functional and technical requirements.

1.4 Scope

This corporate capabilities request:

- Documents RMP's contracting strategy

- Provides vendors an overview of RMP's strategic program plans and direction, future system development plans, functional requirements, and system environment

- Requests corporate capabilities in providing COTS products and technical services necessary to satisfy RMP's functional requirements.

1.5 Document Organization

This document is organized as follows:

- Section 1, Overview, provides the objectives of the corporate capabilities request and the accompanying contracting strategy.

- Section 2, Evaluation Criteria, provides an overview of the evaluation criteria used for this request.

- Section 3, RMP Organization and Information Technology Direction, describes where RMP is today and where it intends to go from a business and IT perspective.

- Section 4, Financial Management and Data Collection Requirements, describes the royalty and production data collected by RMP and the generation and processing of financial transactions from this reported royalty data.

- Section 5, Data Warehouse and Administration Function, describes data warehousing concepts, database support, and integration requirements for legacy systems, a COTS-based financial system, and compliance data.

- Appendix A, Information Technology Environment, describes the current IT environment within RMP.

- Appendix B, RMP Reference Materials, identifies reference materials used to support this corporate capabilities statement. Documents include RMP's *Road Map to the 21st Century*, RMP's *Preliminary Design Concepts*, the Financial Management Recommendations, and the JFMIP Standards.

- Appendix C, Glossary, defines abbreviations used throughout this document.

2 Evaluation Criteria

2.1 Overview

The RMP will initially collect capability statements from interested vendors. The objective is to engage a vendor who has the insight and expertise to successfully:

- Respond to RMP business and information technology requirements

- Manage projects of this scope and complexity

- Implement and integrate the various functional and technical components in a cohesive, cost-effective manner.

2.2 Evaluation Factors

Each respondent's capabilities will be evaluated based on factors relating to key personnel and experience, organizational experience, and past performance.

2.2.1 Key Personnel Skills, Abilities, and Experience

Key personnel will be evaluated based on:

- Experience of the project manager and other key personnel in working on projects similar in concept, dollar value, duration, and complexity.

- Educational background.

Respondents are requested to provide the qualifications and specific experience of the Program Manager and key personnel (i.e., those who would have primary responsibility for performing and managing the contract).

2.2.2 Organizational Experience

The respondent's organizational experience will be evaluated based on the relevance of past projects to this project, including the number of projects, computing environment, complexity, and dollar amount. Of particular interest will be COTS systems the company has implemented and the company's experience implementing and integrating COTS-based financial systems in response to requirements and environments similar to RMP's. Experience of supporting subcontractors, consultants, and partners will also be considered.

2.2.3 Past Performance

The respondent's past performance will be evaluated based on the company's history of successful project completion, including technical excellence, adherence to schedules and budgets, quality of deliverables, and the level of cooperation between the company and its clients. Vendors are requested to provide at least three specific references for similar previous work that the organization and key personnel have performed within the last 3 years (include contract number, project description, period of performance, dollar amount, client identification, and a point of contact and telephone and fax numbers). Past performance will not be evaluated until formal proposal submission in April 1999.

3

RMP Organization and Information Technology Direction

3.1
Overview

This section provides a high-level description of RMP's current organizational structure, major business functions, IT plans, and the reengineering project timeline. More detailed treatment of these topics are presented in Appendix A and in the documents referenced in Appendix B.

3.2
The RMP Organization

The RMP comprises several divisions who work together to ensure that all revenues from Federal and Indian mineral leases are effectively, efficiently, and accurately collected, accounted for, and disbursed to recipients. These revenues come from approximately 72,000 producing and non-producing leases and have historically averaged approximately $4.5 billion annually. They are distributed and disbursed to 38 States, 41 Indian Tribes, 20,000 individual Indian mineral interest owners, other Federal agencies, and U.S. Treasury accounts.

Exhibit 3–1 shows the current RMP organization. The roles and responsibilities of the major operational divisions are described in the RMP *Preliminary Design Concepts* document.

3.3
The RMP Business Functions

The RMP's main business functions are categorized in terms of data collection, processing, and output.

3.3.1
Data Collection and Validation Functions

The RMP's data collection functions encompass a wide variety of activities, including the receipt of documents and information (such as royalty and production reports), payments, and lease data.

Information is submitted to the RMP in a variety of formats: paper, magnetic tape, electronic mail, diskettes, and electronic data interchange (EDI). Royalty and production reports are submitted by the minerals industry. Federal agencies such as the Bureau of Land Management (BLM), the Bureau of Indian Affairs (BIA), and Offshore Minerals Management (OMM) send adjudication actions and information on bonuses, leases, rents, agreements, wells, and mines in a range of formats, from database downloads to paper. Section 4 describes the data collection and validation process in detail.

3.3.2
Processing Functions

Processing functions represent the RMP's main business elements. The processing activities can be described in general terms as applying payments and disbursing revenues, maintaining lease information, verifying production and royalty amounts, comparing and validating data, and reconciling and closing accounts. Section 4 describes the royalty and production reporting functions in detail.
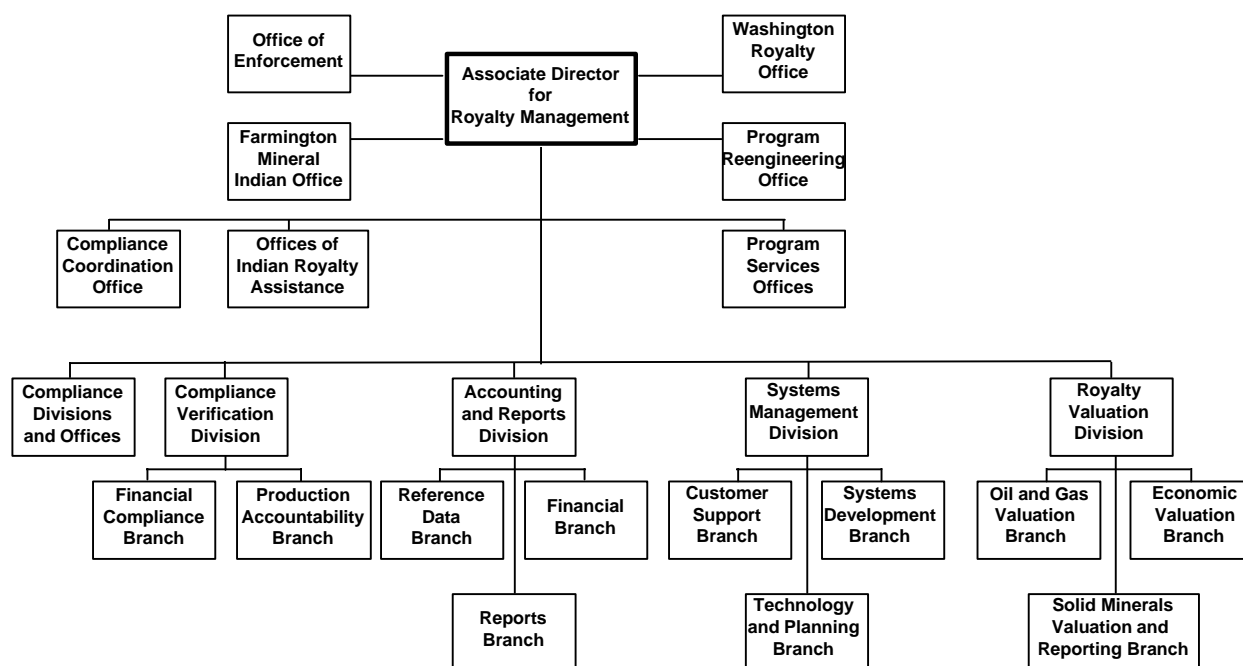
Exhibit 3–1. RMP Organization

In the current environment, data is stored in many systems, including the Auditing and Financial System (AFS), Production Accounting and Auditing System (PAAS), Business Information System (BIS), RMP Query System (RQS), Common Reference Data (CRD), and Viewstar DocView system. Some reports produced from AFS and PAAS are stored in the COLD system. BIS and RQS information will overlap, to a degree, while RMP attempts to phase out the BIS system. These systems, as well as many stand-alone applications, provide data to RMP staff and other users nationwide.

AFS runs various exception processing routines during reporting cycles to determine whether lease and financial terms were met; payors owed any interest; MMS owes payors interest; adjustments, deductions, and recoupments were correctly made; and the correct royalty rate was used. PAAS runs additional exception processing routines for data validation purposes.

3.3.3
Output Functions

Output functions are described as information leaving RMP or one of its systems, such as to respond to inquiries; distribute management reports; generate reports to other Government agencies, industry, States, and Tribes; and disseminate statistics.

3.4
The RMP Reengineering Initiative

In April 1996, RMP undertook a compliance reengineering initiative to examine the compliance strategy and determine the best approach for accomplishing future goals and objectives. The principal reengineering objective was to define and implement a new compliance strategy that satisfied, in the most cost-effective manner possible, the compliance program's primary purpose of ensuring that Federal and Indian mineral lease revenues were paid accurately and on time.

Then, in August 1996, the Federal Oil and Gas Royalty Simplification and Fairness Act (RSFA) was enacted into law, amending the Federal Oil and Gas Royalty

Management Act (FOGRMA) of 1982, the Outer Continental Shelf Lands Act, and the Mineral Leasing Act. RSFA introduced a host of new requirements that significantly changed many of the RMP's historical operating assumptions and revenue processing methods. (Note: RSFA does not apply to solid mineral leases nor to Indian leases). RMP managers realized that, although processes and systems needed to be changed in the near term in order to comply with the law, longer term strategies dealing with fundamental business processes and aging computer systems had to be developed if the RMP was to remain cost-effective and responsive to customer needs.

In April 1997, the RMP expanded the compliance reengineering initiative to address all core business processes. The principal objective was to design, develop, and implement new core business processes and supporting systems for the 21st century. Unlike initiatives to address and incrementally improve existing operations, a reengineering initiative is more comprehensive in its approach and application. It challenges the underlying assumptions on which an organization is built and fundamentally redesigns processes, structures, and systems to achieve desired outcomes.

The RMP reengineering effort identified two end-to-end core business processes that meet the primary mission requirements of the future RMP: the financial management process and the compliance and asset management process.

Managing Money and Information through the Financial Management Process

The financial management process will remain centralized. For information and money flow, it will focus on payors, operators, Federal and State agencies, Tribal Governments, and individual Indian mineral interest owners. The process will be supported by a true automated accounting system that features double-entry accounting, end-to-end accountability for funds, integrated reporting, and system-generated financial statements. Other financial management activities such as billing, payment application, and distribution and disbursement will be extensively automated and supported by workflow and case management systems.

Managing Resources and Ensuring Accountability through the Compliance and Asset Management Process

The compliance and asset management process will ensure that all revenues, whether they are received through in-kind or in-value royalties, are accurately reported and paid and that the compliance status of all leases is known. Regional basin groups will focus on defined oil and gas producing areas and the properties located therein, and on properties and commodities for solid minerals. The groups will manage a full range of compliance and asset management activities, including product valuation, market analysis, verification, and audit. They will structure analytical capability at the same level at which the industry operates: the property and producing area. They will leverage knowledge of the producing areas to ensure the timely and proper payment of royalties. For the first time, RMP will have the information and analytical capability to make timely asset management decisions, at the lease and producing area level, as to whether royalties should be taken in kind

or in value. A more complete description of RMP's reengineering initiative is available in the references identified in Appendix B.

An integral part of the reengineering effort is the modernization of RMP's systems environment. The following section provides an overview of RMP's IT environment and future plans. Additional details are provided in Appendix A.

3.5 Future IT Direction

When the RMP was created in 1982, its IT infrastructure followed the standard "Glass House" paradigm of a large central mainframe system connected to its clients through dumb terminals. Based on this architecture, RMP's mission-critical applications (AFS, CRD, and PAAS) were written in COBOL and used a high-performance, mainframe-based database and transaction processing system (Computer Associates IDMS/R and IDMS/DC).

In 1992 RMP made a strategic decision to begin transitioning its architecture from a mainframe-centric architecture to a distributed architecture that took advantage of RMP's desktop PC workstations and local area networks (LANs), and new cost-effective client/server systems, graphical user interface, and relational database technologies. Based on this decision, all new IT applications since 1992 have been developed as client/server systems using Visual Basic and Microsoft's SQL Server.

Starting in 1995 RMP began its analysis of re-platforming mainframe "legacy" systems to a distributed architecture. It quickly became apparent that the conversion costs far outweighed the benefits, unless the basic business functions supported by the systems could be reengineered to extend the benefits and cost savings beyond the IT infrastructure.

Today, RMP has a modern IT infrastructure based on a mixture of mainframe and client/server systems supported by high-speed metropolitan and wide area networks. The reengineering initiatives represent the central thrust of RMP's future IT direction. The following ongoing and planned projects are part of this overall vision:

- Revenue accounting applications, data architecture strategy, and implementation plan for other desired capabilities, as contained in this request

- Compliance and asset management applications being developed under a separate contract

- Information technology improvements, described further in Appendix A, which include:

    - Electronic commerce enhancements.

    - Implementation of an MMS-wide NT Exchange architecture and desktop standards.

    - Work management. The RMP is exploring an enterprise-wide work management strategy to include workflow, document management, imaging, and COLD, replacing or integrating the existing systems.

- Web client. RMP has found that it is difficult and costly to maintain thick clients (e.g., Visual Basic applications) on PCS, especially for external users. This problem is all but eliminated when applications can use a thin client in the form of a web browser. For future client/ server applications, RMP will be moving to server side application code that only requires a standard web browser at the client.

3.6 Timeline

RMP's reengineering timeline is provided as supporting material for the request. All dates disclosed are estimates subject to RMP management changes. The timeline calls for implementation of the separate modules reflecting the two core business processes previously described: financial processing and compliance processing. Exhibit 3–2 illustrates the timeline for implementing the reengineered business processes and supporting IT environment.

The lower timeline shows the focus of this request: the implementation of the COTS-based financial system and RDBMS. This track poses the most complex undertaking and is estimated to take 2 years to complete. The resulting financial system database is expected to be open to and interoperable with other RMP applications.

The compliance track will be developed concurrently. Compliance module functional requirements and associated RDBMS needs are currently under development and will be defined at a later date.

10/98-9/2000

Compliance Operational Pilot & Spiral Development and Implementation
(Application Development Contract TBD)

Implement
Compliance
Applications
September 2000

Ongoing Integration

Ongoing Integration

| CBD notice | Corporate Capabilities Solicitation | Pre-proposal conference | Vendors Submit Capabilities Statments | MMS Evaluates Vendor Capabilities & Down-Selects | RFP with Functional Requirements and SOW to Vendors | Vendor Proposals to MMS | MMS Evaluates Proposals and Awards Contract | **Financial Applications Contract Performance** **July 1999 - September 2001** | Implement Financial Applications **September 2001** |

11/18/98   11/25/98   12/15/98   1/11/99   1/26/99   3/1/99   4/9/99   6/30/99

Spiral project implementations

Exhibit 3–2. RMP Reengineering Timeline

4 Financial Management and Data Collection Requirements

4.1 Background

The Department of the Interior (DOI) is required by various laws to manage the production of mineral resources on Indian and Federal lands, collect royalties due, distribute royalty and production information, and disburse funds in accordance with those laws.

4.2 Royalty Management

RMP performs the royalty management functions for the DOI. When a company or individual (payor/operator) enters into a contract (lease) to develop, produce, and dispose of minerals from Federal or Indian lands, they agree to pay the United States, Indian Tribe, or individual Indian mineral interest owner a share (royalty) of the full value received for the minerals taken from the leased lands.

RMP uses AFS, a mainframe-based automated financial accounting system, to account for revenues collected and to:

- Facilitate the monthly distribution of mineral revenues to States, Indians, and General Treasury accounts (recipients)

- Provide royalty accounting and statistical information to States, Indians, and others who have a need for such information

- Identify under-payment, non-payment, and late payment of amounts due so RMP can pursue collection

- Identify incorrect adjustments, recoupments, and deductions to reporting so RMP can pursue collection.

RMP also uses a second major automated system, PAAS, as an integral part of its compliance/verification activities. The system tracks the volumes of fluid and solid minerals produced on Federal, State, and Indian lands and also tracks their ultimate disposition. This data is reported to the RMP by the operators of the mineral producing properties. This data is maintained for analysis by the program, and it is also:

- Provided to States, Indians, and others who have a need for such information

- Used by OMM and BLM to compare reported oil and gas, solid minerals, and geothermal sales volumes against the source documents (i.e., run tickets and tank tables) to identify under-reporting

- Used to compare sales volumes reported by operators against the sales volumes reported by payors to identify under-reporting.

Both AFS and PAAS use data contained in the Common Reference Database (CRD), which contains a wide variety of information, including lease and agreement information; well, mine, and facility data; and information on reporters. The CRD also identifies the relationship between leases, wells, agreements, and reporters for oil and gas, and the relationship between mines, leases, and development contracts for solid minerals. Further, the CRD contains industry information such as company names, mailing and billing addresses, and bank information. CRD data is maintained for analysis by the program, and is also provided to the agency with jurisdiction for the property (i.e., OMM, BLM, and BIA, in addition to States and Tribes).

4.2.1 Royalty Reporting

Every month, RMP receives royalty data from the minerals industry via the "Report of Sales and Royalty Remittance," herein referred to as the "remittance report." Separate reports are required for Federal and Indian properties. Each report contains one or more detail lines that report a number of data elements including the property (lease number) and product on which payments are being made, the sales month in which the product was sold, a transaction code that identifies the type of payment being reported, and the quantities of production on which royalties are being calculated. These reports are submitted to RMP via diskette, EDI, electronic mail, magnetic tape, and paper.

In FY 1997, MMS received approximately 27,929 remittance reports containing almost 3.5 million lines of data. The following average number of lines were received through each reporting media:

- Diskette: 139,200
- EDI: 765,500
- Electronic mail: 102,000
- Magnetic tape: 1,684,600
- Paper: 778,600.

Once royalty data has been collected and validated, an accounts receivable record is created for each received remittance report. At least one accounts payable record is created for each detail line of a remittance report. Incoming payments are recorded as payment documents. The payment documents are matched to the appropriate accounts receivable record (e.g., a remittance report or a bill generated by RMP), and the payment amounts are allocated to the accounts payable lines based on allocation priorities. The distribution process identifies these payable records as eligible for disbursement. Disbursement ratios contained in the CRD define how and to whom the funds are actually disbursed.

4.2.2 Production Reporting

Operators are required to submit production data monthly on either the "Oil and Gas Operations Report" (OGOR) or the "Monthly Report of Operations," herein referred to as the "operations report." Reports are prepared for leases and agreements. The OGOR is scheduled to be reengineered to handle all production reporting, and the operations report is scheduled to be discontinued. Historical operations data will be converted to the new system. RMP also tracks production

allocation information and gas plant and facility data. Solid mineral operators are required to submit monthly "Solid Minerals Operations Reports" (SMOR) for each mine. RMP also collects processed product production and facility data through the "Solid Minerals Facility Report" (SMFR).

In FY 1997, production reports containing almost 4.5 million lines of data were received. The following average number of lines were received through each reporting media:

- Diskette: 362,600
- EDI: 408,900
- Electronic mail: 264,300
- Magnetic tape: 1,228,300
- Paper: 2,229,000.

As part of the reengineering effort, the royalty and production reporting forms are currently under review. A separate reporting format is being considered for solid mineral lease reports.

4.3 Integration Requirements

RMP wants the COTS-based financial system that can best meet their royalty management functions. In addition to such standard financial functions as general ledger processing and billing, the system will support the following functions unique to RMP:

- Data collection and validation requirements for royalty, production payment, and reference data. Beginning in the summer of 1999, royalty and production information will be collected centrally. All media types will be consolidated and sent via EDI to RMP.

- Financial exception detection.

- Distribution and disbursement of revenues.

- States, Indian Tribes, and other internal and external Federal agency information requirements.

- Internal and external interfaces.

Further, RMP uses a wide array of ancillary systems such as stand-alone PC, client/server, and legacy applications to augment existing AFS functionality. The functions of many of these ancillary systems must be integrated with or, preferably, incorporated into the selected COTS-based financial system.

The functional requirements are captured in the following broad categories:

- Data Collection and Validation – includes royalty, production, and reference data, and unique edits, validations, and associated exception processing routines.

- Royalty Management – includes the collection and disbursement of revenues, financial exception processing, and bill generation, and the collection of bad debt.

4.4 RMP's Financial Management Requirements

RMP collects payments and production and royalty data, disburses payments, and distributes reports to various Government agencies (e.g., BLM, BIA, OMM, and Treasury), States, and Indian Tribes, and individual Indian mineral interest owners. This data is provided in accordance with various laws and congressional mandates. The goal of accounting and financial processing at RMP is to match financial obligations with corresponding payment documents, which are then applied and paid out to the States, Federal Government, Indian Tribes, and individual Indian mineral interest owners.

To support this financial activity, RMP must collect data from many different sources. The data collection function encompasses a wide variety of activities, including the receipt of documents and information such as royalty and production reports, payments, and lease terms.

The new COTS-based financial system shall:

- Maximize the use of COTS software

- Utilize a relational database architecture

- Support RMP's unique accounting and financial processing functions, production reporting requirements, and data collection and validation needs with a minimum of custom software

- Provide an infrastructure in which the underlying business rules and reports are easily adapted to changes resulting from future legislation, the technical environment, and the functional requirements

- Provide functionality that will minimize or eliminate duplicate data entry necessary for reconciliation and continued use of ancillary PC, client/ server, and legacy applications

- Provide a flexible foundation to support future integration with third party tools such as case management, imaging, and document management systems and applications.

The following sections describe RMP's data collection and financial system requirements at a high level.

4.5 Data Collection and Validation Overview

Companies and other Federal agencies provide RMP a wide variety of information. This data is used to distribute collected monies to appropriate recipients (States, other Federal agencies, Treasury, Indian Tribes, and individual Indian mineral interest owners). The accuracy and completeness of the reported data is critical to RMP's functions.

The system must provide the capability to collect and validate the following data:

- **Reported Financial Activity.** Rent and royalty data is reported on a remittance report. Approximately 27,929 companies and individuals report financial data to RMP on a monthly basis. A remittance report may contain a single line or up to thousands of lines. ***Note: Federal royalty data is reported separately from Indian royalty data. Rents can also be reported through other means.***

- **Production data.** RMP tracks production and disposition activity for Federal and Indian leases and agreements on active wells and mines. RMP requires all onshore and offshore lease/agreement/mine operators to provide monthly operations (production) reports. Production data is reported by operators who produce oil, gas, or solid minerals on Federal or Indian leased lands.

- **Agency data.** Agency data is used for reference and validation purposes. Agency data includes lease, agreement, facility, well, mine, and logical mining unit data.

- **Payment data.** RMP receives payments by check, the Treasury Online Payment and Collection (OPAC) system, Electronic Funds Transfer (EFT), and notification of payment made to Indian tribal lockboxes.

- **Property data.** Property data includes items such as contracts, pricing schedules, and sales agreements.

- **Corporate data.** Corporate data is used for reference and includes company information such as name, mailing address, billing address, electronic mail addresses, Taxpayer Identification Number (TIN), bank information, payee information, and points of contact.

4.5.1 Data Collection

RMP collects royalty and production information from industry in paper, magnetic tape, electronic mail, diskette, and EDI formats. Future plans include a web-based reporting and validation application. Payments are sent by electronic media and by paper check. The BLM and OMM send information on bonuses, leases, rents, agreements, wells, and mines in a range of formats, from database downloads to paper.

Most leases are held by large corporations that submit royalty and production lines using one of the types of electronic media. ("Lines" are an RMP reporting format used to identify royalty and production data submitted on reports that are entered into existing applications.) These same large companies also submit payments electronically.

As a part of the reengineering effort, RMP is examining alternatives to data collection. Data collection practices will be changed starting in the second quarter of FY99. All electronic data will be collected, rudimentary validations against the data will be performed, and the data will be forwarded to RMP systems for further processing. Paper reports will continue to be sent to RMP, where they will be keyed

in and imaged. RMP must identify and incorporate efficient, cost-effective alternatives for small business and non-computerized reporters. Companies that currently report using EDI will continue to submit their reports to RMP.

4.5.2 Data Validation

Collected data is subject to a wide range of validation rules based on type and source. Lease information provided by Federal agencies uses a different set of validation rules than royalty and production data reported by industry. Further, royalty data is validated differently than production data, although both types are validated against agency data.

As a part of the reengineering effort, RMP will begin billing companies that routinely have the same types of errors on their reports (royalty and production). This type of exception processing is referred to as Chronic Erroneous Reporting. The following section describes some of the validation rules unique to RMP processing.

4.5.2.1 Reported Financial Data – Validation Rules

Remittance report detail lines are validated against criteria such as valid lease number, valid product code, and valid sales month. Detail lines are validated based on the type of lease and payment reported. Not every detail line is subjected to all validation rules—approximately 97 percent of all lines pass the validation rules and are accepted into AFS during initial processing. Data that does not pass the validation rules is rejected and held in suspense until corrected.

Once the data has been validated and corrected, if necessary, royalty records are updated. The system generates the appropriate financial transactions from the reported royalty data. Accounts receivable entries are created for royalty documents received from the minerals industry. At least one accounts payable entry is created for each detailed royalty "line" on a royalty document.

4.5.2.2 Production Validation Rules

Production detail lines are validated against criteria such as well number, mine, operator, facility, and whether or not the produced volumes were sold, used on the lease, or added to inventory. Approximately 96 percent of all production lines pass the validation rules initially. All lines on a document must pass validation before any lines on that document will update.

Documents that do not pass validation rules are rejected and held in suspense until corrected. The original production reports for a lease or agreement must update chronologically, so documents that stay in suspense have a cascading effect on documents for future months.

On average, the 4 percent of lines that are rejected may cause approximately 35 to 45 percent of incoming lines to be in suspense. Documents that do not pass validation rules are rejected and held in suspense until corrected or replaced with new reporting. This data does not create a receivable and payable account within the system. Validated production data is stored for use in the compliance and asset management process.

4.5.2.3
Exception
Processing
Validation Rules

In addition to the validation rules described above, production data is subjected to an exception processing routine. This routine, "Completeness of Reported Data," checks that reports are received for all properties and wells for which reports were expected.

4.5.2.4
Agency Data
Validation Rules

Agency data is validated against established relationships within CRD; for example, a lease must be associated with a valid payor, and a well must be associated with a lease or agreement.

4.5.3
Data Collection and Validation Functional Requirements

The system shall:

- Collect and store different types of data, which includes, as a minimum, production and royalty reports and payments

- Establish validation rules for different data types (that is, royalty versus production data), apply those rules, and track exceptions through the correction process

- Generate the appropriate financial transactions from reported royalty data

- Provide reported data to other agencies

- Systematically track and accumulate errors by type and reporter for use in chronic erroneous reporting

- Maintain an audit trail of original entry, modification, and deletion of reported data.

4.6
Financial System Requirements

The Joint Financial Management Improvement Program (JFMIP) is a joint cooperative undertaking of the Office of Management and Budget (OMB), the General Accounting Office (GAO), the Department of the Treasury, and the Office of Personnel Management (OPM) to define financial management system requirements for the Federal Government. Although RMP's accounting functions have many unique aspects with regard to Federal financial management, one of the primary procurement objectives is to obtain a COTS-based financial system that complies with JFMIP to the greatest extent possible, in particular in the following areas: core financial system management, general ledger management, receipt management, and financial reporting.

The following sections provide an overview of the financial processes and high-level functional requirements necessary to support these processes.

4.6.1
Financial Accounting

AFS does not fully support the automated generation of Treasury reports or annual financial statements. AFS was never designed to be a comprehensive accounting system. Stand-alone personal computer applications and manual processes complete basic accounting functions. One of the primary reasons for implementing the COTS-based financial system is to provide RMP end-to-end accountability for funds, integrated reporting, system-generated financial statements, and more rapid and user friendly access to complete, accurate, and auditable financial data.

4.6.1.1
Financial
Accounting
Functional
Requirements

The functional requirements for financial accounting are as follows:

- All transactions to record financial events must post, either individually or in summary, to the U.S. Government Standard General Ledger (SGL), regardless of the origin of the transaction.

- The SGL must provide the capability to define agency-specified subsidiary accounts. These accounts must roll up to the accounts provided in the SGL.

- The general ledger must be supported by subsidiary ledgers at various levels of detail. These subsidiary ledgers may be maintained within the core financial system or in other systems.

- The system must perform periodic accruals, closing, and consolidation as well as general ledger analysis and reconciliation.

- The system must generate standard Treasury reports such as "Statement of Transactions" (SF-224), and the "Report on Receivables" (SF-220-9).

- The system must support IRS 1099 reporting, including the TINs and payee type (for example, sole proprietorship, partnership, corporation). In cases where a third party acting as agent receives the payment, maintain Internal Revenue Service (IRS) 1099 information for the principal party rather than the agent. Produce IRS forms 1099 for interest (1099-INT) and cancellation of debt (1099-C).

- Auditable financial statements must be generated for consolidation with MMS annual financial statements and ultimate submission to and consolidation by the DOI.

4.6.2 Revenue Collection, Distribution, and Disbursement

RMP must report and disburse reported and paid revenues to Federal, State, and Indian recipients. The following processes support this function:

- Cash Application
- Distribution and Disbursement.

4.6.2.1
Cash
Application

When a payment is received, the system shall record the collection of funds. The cash application process involves matching incoming payments, such as checks and wires, to outstanding receivables, such as remittance reports and bills, based on business rules. As a general rule, each payment received by RMP requires a receivable to direct the money to the proper recipient. It is the information on the receivable, not the payment, that identifies the proper lease to be credited which, in turn, identifies the proper recipient.

A workflow system will track unmatched items until successfully matched. Successfully matched payments will be allocated to appropriate accounts payable details based on predefined allocation rules, and the corresponding updates to the general and subsidiary ledgers will be posted.

Once the payment is validated and matched, the system shall liquidate the corresponding amount on the outstanding receivable and make funds available to the recipient.

4.6.2.2
Distribution and
Disbursement

The RMP treats the identification of the proper recipient and subsequent reporting of disbursement details as a distribution function. The transfer of money to the appropriate recipient is treated as a disbursement function. Federal and Indian disbursements are handled separately. Currently, Federal distribution and disbursement occur simultaneously, once each month.

Indian distribution and disbursement are distinct processes that occur separately during the month. Indian disbursements are made daily to the Office of Trust Funds Management (OTFM), and distribution occurs twice a month. The Indian distribution information provides details to OTFM to make payments to individual Indian mineral interest owners and provides a description of monies deposited to the tribal account.

The proposed system shall provide the capability to run distribution and disbursement more frequently, on demand, by document, or separately by Federal or Indian. Federal disbursement must occur by the end of the month following the month in which payment is received, or RMP must pay late disbursement interest to the State.

States must share in the cost of RMP financial processing. On a monthly basis, each State's share of the cost is deducted prior to disbursement to the State.

In general, the distribution process selects payable lines from the associated accounts receivable document for which money has been applied. Payables that have money available—that is, that have money allocated and have not yet been distributed—are identified as eligible for Indian distribution and Federal distribution and disbursement.

The distribution process includes the following:

- Identify Indian lines for distribution

- Identify Federal payable lines available for disbursement

- Generate the Explanation of Payment (EOP) for States, Indian Tribes, individual Indian mineral interest owners, and other Federal agencies

- Provide distribution information to recipients by file transfer or by mailing of hardcopy reports.

Actual Federal disbursement is based on the amount of money available and disbursement ratios. Federal disbursements for eligible transactions are accomplished in two ways:

- For payments to States: through Treasury, using an SF-1166 and the Electronic Certification System (ECS)

- For payments to other Federal agencies: through the Treasury Online Payment and Collection (OPAC) system.

4.6.2.3 Revenue Collection, Distribution, and Disbursement Functional Requirements

The functional requirements for revenue collection, distribution, and disbursement are as follows:

- Provide a means for both systematic (based on business rules) and online matching of payments against receivables and the corresponding systematic closing of the receivable.

- Assign unmatched payments to a work queue and track the unmatched item throughout the correction process.

- Generate reports supporting this process.

- Remove money associated with an accounts receivable to make it available to apply to a different receivable or to refund.

- Identify Federal and Indian payable transactions eligible for distribution and disbursement.

- Allocate applied payments to payable lines.

- Disburse revenues to States, Indian Tribes, and other Federal agencies in a timely and efficient manner.

- Generate EOP for States, Indian Tribes, and other Federal agencies.

- Provide access to EOP data online, file transfer, or hard-copy reports.

- Differentiate between Federal and Indian records and process the transactions appropriately.

- Provide the capability to create disbursement files for use in Treasury's ECS and OPAC system.

- Calculate late disbursement interest due to recipient for delays in RMP processing.

- Allocate and deduct the State recipient's predetermined share of processing costs such as assessment or administrative fee.

4.6.3 Financial Exception Processing and Billing

The following processes support this function:

- Financial Exception Processing
- Billing.

4.6.3.1
Financial
Exception
Processing

A number of exception processing routines are run to identify reporting anomalies and errors. Payors are notified of these errors, usually by a bill. Based on the type of exception, payors may correct these errors by submitting revised reports or by paying the bill generated by the exception processing routines. Financial exception processing includes the following:

- **Financial terms.** RMP is required to collect past due amounts on monies not paid pursuant to lease terms. Bills will be issued for underpayment or nonpayment of a lease based on the financial terms. RMP also provides payment reminders (referred to as a "Courtesy Notice") of upcoming amounts due for some lease terms. A Courtesy Notice, as opposed to a bill, does not automatically generate an accounts receivable entry. Only when payment is received with a Courtesy Notice is a receivable and payable created.

- **Interest.** RMP is required, by law, to assess interest on all late payments. Interest is assessed differently by lease type (that is, for Federal, Indian, oil, gas, and solid mineral leases). Interest calculations are also different for Federal oil and gas leases for both pre-RSFA and post-RSFA.

  RSFA also requires that RMP calculate and pay interest as a result of reductions made by industry to previously reported Federal oil and gas amounts (referred to as overpayments). In addition to late payment interest, RSFA also introduced several other interest calculation requirements.

  Amounts owed and amounts due are offset, and a single net interest bill is issued. Interest paid must be tracked and is subject to IRS 1099 reporting.

- **Indian over-recoupment.** Industry can adjust previously reported amounts based on a variety of circumstances such as pricing and volume adjustments. For Federal leases, there are no restrictions on these adjustments. On Indian leases, RMP is required to monitor these adjustments (recoupments) to ensure that:

  - on Indian tribal leases, the recoupment does not exceed the current month's royalty revenues

  - on Indian allotted leases, the recoupment is not more than 50 percent of the current month's royalty revenue.

Payors who fail to comply with applicable regulations are identified by exception processing and are subsequently billed for over-recoupment.

4.6.3.2
Billing

A document referred to as a "pre-bill" is generated from the exception processing routines described above. Pre-bills are subject to validity checks. Manual verifications determine whether the pre-bill is correct. Modifications are done, if necessary, and a bill is generated.

Bills are issued to reporters or lease holders, who are given 30 days to pay; otherwise, debt collection action is initiated. Bills are also manually entered based

on billing requests from RMP personnel. There is a requirement to modify, delete, or recalculate pre-bill documents. Currently, this is accomplished in a client/ server application and passed to the mainframe.

Currently, bills are generated in hard copy and are submitted to a contractor for certified mailing. As a part of reengineering, RMP would like to send bill data electronically, where possible. Approximately 8,700 bills were sent out in FY 97 totaling $269 million. Of these, 6,900 ($46 million) were system-generated and 1,800 ($223 million) were manual.

Bills are adjusted by RMP personnel for various reasons. Bill adjustments are accomplished by entering credit documents. Applicable credited amounts must be tracked for IRS 1099 reporting purposes.

4.6.3.3 Financial Exception Processing Billing Functional Requirements

The functional requirements for financial exception processing and billing are as follows:

- Establish and apply complex rules to identify, systematically, as many of these financial exceptions as possible.

- Create pre-bills automatically from business rules and provide the capability for RMP personnel to modify, delete, and recalculate pre-bills online.

- Store original pre-bills and modifications such as items that were changed and by whom.

- Provide an audit function for billing information.

- Calculate and issue pre-bills and bills for interest and penalty payments when required.

- Generate bills automatically based on business rules and manually on demand.

- Provide the capability to place a bill on hold to prevent systematic follow-up action.

- Provide the capability to modify and adjust billing transactions.

- Create the bill, print the bill and its mailing envelope, and generate an electronic billing notification (via electronic mail and fax) to industry.

- Create electronic attachments to a company's electronic bill notification as defined by business rules.

- Track identified exceptions.

- Generate "Courtesy Notices" (payment reminders) automatically based on business rules and manually on demand. (These notices do not automatically generate a corresponding accounts receivable record.)

- Create appropriate financial transactions for bill adjustments.

4.6.4
Debt Collection

RMP uses a structured debt collection process that adheres to the Federal Fair Debt Collection Practices Act. Delinquent payors are identified, and the debt collection process commences. Workflow and case management tools are used to track delinquencies through the collection process. Workflow notifications to debt collection for events such as receipt of payment, request for appeal, and posting of sureties are critical so that the proper follow-up action can be taken.

Installment agreements and settlements are an integral part of the debt collection process. Installment agreements require workflow and case management tools to identify the installment debt and track payments made on the debt. Notifications to debt collection are necessary if installment payments are not made on time. Settlements also require workflow and case management tools to identify settled debts and adjustments to the debt amount (credit) and to attach the settlement to the bills to stop any future collection attempts. Debt that is deemed uncollectible is removed from receivable accounts (written off).

4.6.4.1
Debt Collection
Functional
Requirements

The functional requirements for debt collection are as follows:

- Generate delinquent notifications systematically based on current regulations and the due date of the bill.

- Generate delinquent notifications using different media types such as electronic mail or letter.

- Systematically complete delinquent notifications to the greatest extent possible including, for example, payor name, code, and lease number.

- Handle installment payment agreements.

- Support processing of settlements.

- Support processing of write-offs and other debt collection adjustments to bills, including posting of the related 1099 amounts.

- Provide integration with workflow applications for tracking billing and collection activities including, but not limited to, debt collection stages and automatic notification of payment.

4.6.5
Reporting and
Query

Providing information to customers is a critical aspect of RMP's mission. RMP produces a large number of reports per month that are available for viewing on line or in hard copy. Some of these reports are loaded to a COLD system; a number of these reports are sent to RMP customers.

RMP also provides access to current and historical data through two information systems: BIS and RQS. The purpose of both systems is to make the mainframe data more accessible. These systems are described in Appendix A of this document.

**4.6.5.1
Reporting
and Query
Functional
Requirements**

The functional requirements for reporting and query are as follows:

- Enable a user to create a variety of standard and customized reports.

- Generate canned queries (pre-defined) and ad-hoc queries (select from a predefined list of data elements).

- Enable RMP customers to access their current and historical data quickly, easily, and securely through the intranet, extranet, or Internet.

- Limit RMP customers' access solely to their data.

4.7 Relational Database Requirements

RMP wants an RDBMS for the COTS-based financial system that conforms to the following standards:

- **Database Language** – FIPS PUB 127-2: 1993, Database Language for RDBMS

- **ODBC** – Open Database Connectivity, ODBC 2.0 standard

- **SQL Standards** – All database queries shall comply with the SQL standards promulgated by various Federal agencies.

4.8 Global Implementation Issues

4.8.1 Security

This section highlights two primary areas of concern with regard to implementing a COTS-based financial system: security and reporting changes.

One of the reengineering goals is to provide the ability for companies, States, Indian Tribes, and other Federal agencies to view their account information (royalty, production, and payment data) on line. RMP receives many written and oral requests for information. RMP provides this information as a service to their customers. Secure access is a critical component to fulfilling this requirement.

The COTS-based financial system must also provide strict application-level security. User access must be controlled by document type. The capability to create, read, update, or delete a document must also be controlled.

Security is required at multiple levels:

- Secured connections to RMP systems for accessing information

- Security structure that restricts companies, States, Indian Tribes, and other Federal agencies from viewing data other than their own (although a summary lease-level view is permitted).

- Application-level security for online transaction processing.

As a part of the formal RFP, the contractor will be required to deliver a security plan describing the proposed security structure and security controls. The security structure will include the ability to define different security profiles (for example, for a single user or group of users, or based on document type). The system must allow user profiles to be set such that standard internal controls can be enforced. The system must provide the capability for a user to override certain system-generated errors.

4.8.2 Reporting Changes

RMP is currently revising the format and content of the remittance report and its production report. New forms for royalty and production reporting for solid mineral leases are being proposed. The timing of final approval of these reporting changes and the implementation of these changes by reporters will significantly impact the way in which the financial system collects, validates, and stores royalty and production data. The following paragraphs describe some of the impacts of these reporting changes on the implementation of the COTS-based financial system:

- **Report Translation:** At the time the financial system is implemented, not all reporters will have completed the modifications to their systems to support the new reporting changes. Therefore, one of the functional requirements must be the capability to translate the current reporting format to the new reporting format.

- **Restoration of Historical Data:** RMP frequently requires that previously archived financial data be restored into the production environment for adjustments. The restoration of historical data (old report format) into the production environment (new report format) is a significant data conversion issue.

- **Access to Historical Data:** RMP requires inquiry access to historical data. RMP will define how much of the historical data must be available for online inquiry.

- **Data Conversion:** The changes to the report formats will have a significant impact on data conversion.

As a part of the formal RFP, the contractor will be required to deliver a detailed conversion plan including, but not limited to the following:

- Data conversion definition (scope)

- Data conversion strategy, including schedule, resource requirements, and detailed conversion procedures addressing issues related to the report format changes

- Data conversion validation plan, including data integrity requirements.

5

Data Warehouse and Administration Function

5.1
Overview

RMP's goal is to manage data as a program resource so employees and constituents have the information they need, when they need it, and in the form in which they need it to do their jobs. Just as other operational activities manage facilities, money, and people, the Data Warehouse and Administration Function manages the resource of RMP data—data that is relevant to planning, managing, operating, auditing, and communicating RMP activities.

RMP's information resources reside on:

- Mainframe legacy databases
- Microsoft NT SQL Server RDBMS databases
- User-developed databases (for example, Access, dBase, and Excel)
- Intranet and Internet documents and files.

In addition, new information sources and structures are being developed under the compliance and asset management reengineering process.

The Data Warehouse and Administration Function focuses on data architecture as a framework for decision-making, creation of a common language of standards, arbitration and negotiation of data utilization, and creation of computer security programs to assist in protecting computer resources, which includes development of the following:

- A data architecture comprising data principles and models

- Data standards

- A program-wide structure of data stewardship with explicit rights and duties

- A forum for arbitration and consensus building

- Education and advocacy regarding RMP's data resources

- Data security program

- Development of a data dictionary.

The following factors are particularly critical to the success of the Data Warehouse and Administration Function:

- Authority and responsibility for enforcing standards

- Active support of senior management

- Ability to measure data quality, security, and ease of access

- Powerful, flexible data dictionary/encyclopedia

- Participation of data stakeholders in RMP's decentralized computing environment

- An understanding of clients' needs and a determination to meet those needs.

5.2 Objectives of RMP's Data Warehouse and Administration Function

Four objectives drive the Data Warehouse and Administration Function:

- Improve the quality of the data, including accuracy, timeliness, and definition.

- Improve the security of the data, including confidentiality and protection from loss.

- Improve ease of access, ensuring that data is easily located and easily accessed once located, and that people have enough information about the data to understand what they have found.

- Reduce the redundancy of the data. Sharing data—rather than replicating it in multiple applications and moving it back and forth among those applications—is a prerequisite for flexible, cost-effective systems that yield accurate, timely information.

5.3 Data Administration Functional Requirements

RMP is seeking contractor technical support services to:

- Perform a detailed analysis of RMP's existing and future RDBMS requirements. Elements of the analysis should include, but are not limited to the following: existing applications requirements, planned/future applications requirements, hardware requirements, performance requirements, and integration requirements.

- Develop and document a recommendation for a suitable RDBMS for RMP's environment based on the results of the analysis. This deliverable should include, but is not limited to the following:

  - A cost/benefit analysis that includes all transition and operations costs

  - The development, communication, and administration tools required to implement and support the RDBMS

- A transition plan for smooth migration from the current environment to the proposed environment, including impact analysis, schedule, and resource and training requirements

- An analysis of RMP's licensing requirements for the RDBMS, including recommending a licensing strategy that would minimize RMP's costs

● Develop an enterprise-wide data warehouse and administration strategy.

The recommended RDBMS may be different than the RDBMS used by the COTS financial system.

A | Information Technology Environment

A.1
Data Networks

RMP's network services are standardized on the TCP/IP protocol. By standardizing on this open network protocol, RMP's network seamlessly supports all open systems including mainframes and NT/Unix servers.

RMP's wide area network (WAN) connects its mainframe and NT server services to remote clients, including State and Tribal Royalty Audit Committee (STRAC) sites, RMP Compliance offices and audit residency sites, telecommuters, mobile users, and other Government agencies. WAN services for the 34 remote locations supported directly by RMP are provided through AT&T's frame relay services. The number of clients supported at each site range from 5 to more than 150. In order to control network costs and at the same time provide excellent response time, RMP's WAN architecture has local NT file/print/application/authentication servers at each site. Clients are connected to their local server through 10BaseT LANs. Network traffic is therefore limited to data interchange with centralized servers and the mainframe.

RMP considered a distributed database architecture, but dismissed the idea because the inherent complexity, cost, and support problems outweighed any performance benefits at that time.

Microsoft's Systems Management Server (SMS) is used to distribute desktop software and provide remote help desk support. Based on this architecture, RMP's frame relay bandwidth ranges from 56 to 256 kbytes. Telecommuters and mobile users gain entry to the network through RMP's dial-up capabilities. Other Government agencies have controlled access through the Department of Interior's Network (DOINET).

RMP's WAN architecture was built to address its IT goal of providing at their desktop workstations all the information RMP users need. All remote users have access to the same applications and information resources as those connected locally in Lakewood, Colorado. The only access limitations are based on security and data sensitivity.

RMP's WAN is connected to other MMS offices across the nation through the DOINET. Because DOINET is fully open to the Internet, MMS will have a Cisco PIX firewall at its six major locations (Lakewood; Herndon; Washington, DC; Metairie; Anchorage; and Camarillo) by the second quarter of FY 99. The six firewalls will be connected through Virtual Private Network (VPN) pipes across DOINET.

Exhibit A–1 depicts MMS's wide area network. The diagram indicates the STRAC, audit, and residency sites that are part of the frame relay network. The diagram also shows the MMS sites that are connected via the DOINET.

MMS Wide Area Network
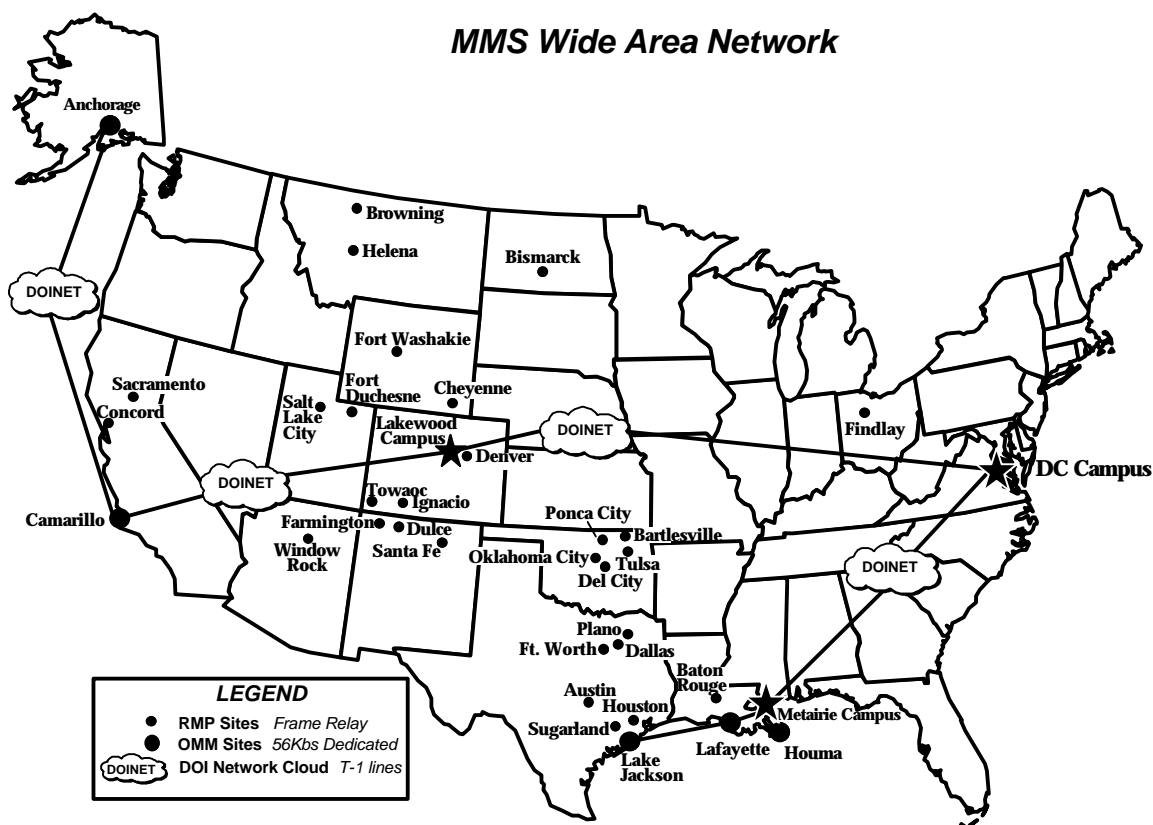
Exhibit A–1. MMS Wide Area Network

RMP's Lakewood Metropolitan Area Network (MAN) links the five buildings that house RMP employees and contractors within a 5-mile radius in Lakewood, Colorado.

The MAN has the capability to handle significant traffic loads. The Cisco equipment is designed to cope with the increased traffic an intranet/Internet environment can impose on a network. The Cisco equipment with the fiber backbone also has the capacity to handle traffic at a speed needed to support video streaming and multimedia applications.

Cisco LightStream 1010 ATM switches connect Building 85, Building 53, and Golden Hill to a fiber-optic ATM backbone. Cisco 7000 series and 4000 series routers are connected to the LightStream through 155-Mbps (megabits per second) multimode fiber-optic cable. The Cisco Catalyst 5500 switches are connected in a similar fashion to the LightStream and deliver 100-Mbps bandwidth to the workstation by using Fast Ethernet components. Exhibit A–2 depicts RMP's MAN.
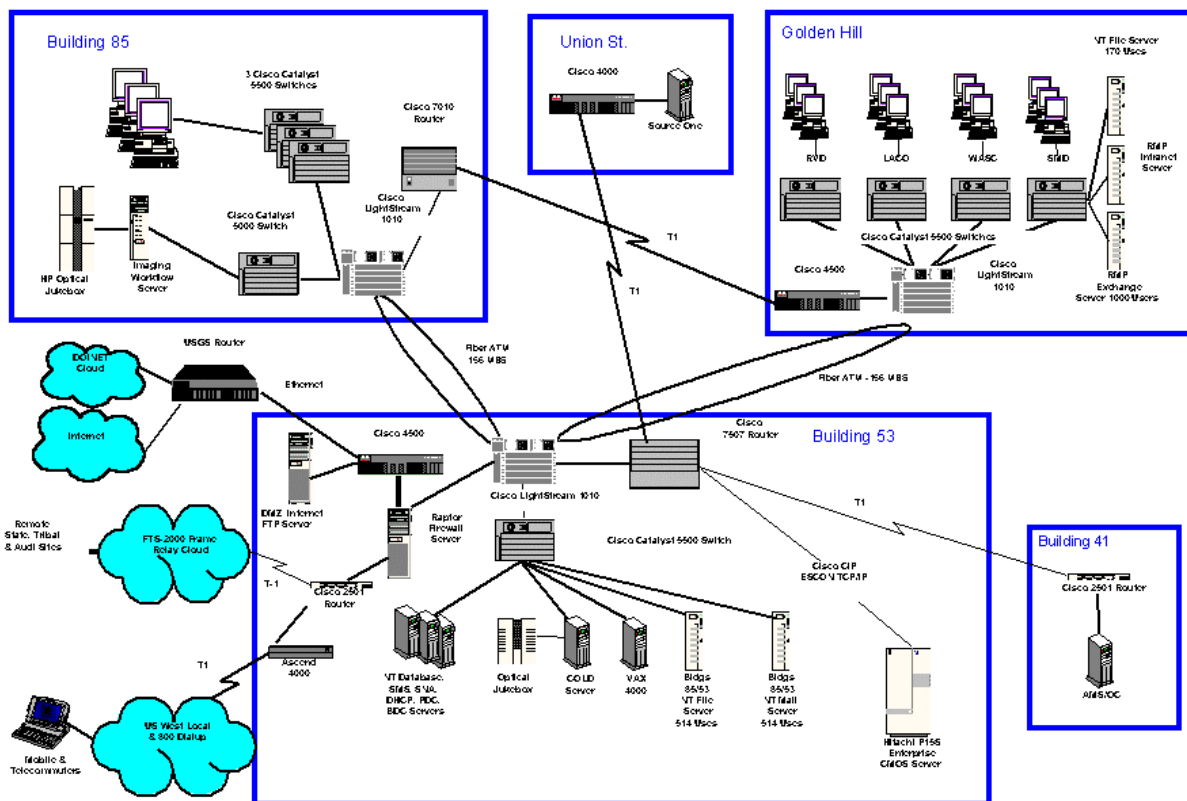
Exhibit A–2. RMP's Lakewood MAN

A.2
RMP Computing Facilities

Since the implementation of its first International Business Machines (IBM) mainframe in 1985, RMP has maintained a central computing facility in Lakewood, Colorado. Although originally intended as the mainframe site, it has evolved over the last 8 years to become the center of RMP's Network and Client/Server services. The computing facility, which is operated by RMP's O&M contractor, AMS/OC (American Management Systems/Operations Corporations Incorporated), is staffed 24 hours a day, 7 days a week. In addition, AMS/OC provides help desk support from 6:00 a.m. Eastern time to 6:00 p.m. Pacific time. Mainframe components take up less than 50 percent of the facility's 2,500 square feet, and most of that involves storage of MMS's 25,000 3480 tape cartridges. With around-the-clock staffing, security, power and environmental controls, a raised floor, and battery/diesel power backup, RMP also maintains all of its network services at the location. Besides being the center of its wide area and metropolitan networks, the facility also houses the following equipment:

- Enterprise NT servers (MS SQL, SNA, SMS, Domain)
- Exchange servers
- Lakewood NT application servers
- Lakewood NT file and print servers
- COLD servers and optical jukebox

- Imaging system servers and optical jukebox
- Ascend 4000 dialup server
- Internet web server.

Because all of the services housed in the computing facility are critical, RMP has disaster recovery plans that it regularly tests for its mainframe, client/server, and network resources.

A.3
Mainframe

As mentioned in this section's overview, RMP has been diverting all new development to its client/server architecture. While the mainframe's central processing unit (CPU) utilization has declined since 1994, the mainframe continues to house MMS's mission-critical applications and provides stable, current technology mainframe hardware and software.

In 1997 RMP "right-sized" its mainframe from a Hitachi EX-90 (72 MIPS) to a Hitachi Pilot 15S enterprise server (49 MIPS). RMP subsequently upgraded its processing power to a complimentary metal oxide semiconductor (CMOS) processor during this mainframe change. At the same time, it replaced all its obsolete IBM direct access storage devices (DASD) with an Egan Marino Corporation (EMC) 5200 Symmetrix redundant array of independent disks (RAID). EMC's RAID array was selected based on its ability to simultaneously provide storage for RMP's CMOS processor and NT servers. In total, RMP's mainframe has access to 257 gigabytes of online storage. The mainframe operating system was recently upgraded to the current release of IBM's OS-390 operating system.

RMP currently operates its AFS, CRD, PAAS, and BIS systems on its CMOS mainframe.

A.4
Desktop Client

RMP currently supports approximately 1,000 PC workstations directly connected to its network. All workstations are configured based on MMS's standardized desktop client. This desktop standard provides:

- A common operating environment to support all client services
- A consistent application platform for collaboration
- Enhanced user support and desktop stability
- Significantly lower total cost of ownership.

The RMP desktop standard consists of:

- Intel Pentium PC (90 MHZ or faster) with a 17-inch SVGA monitor
- Microsoft Windows '98
- Microsoft Network TCP/IP
- Microsoft Office Professional '97
- Microsoft Outlook '98
- Microsoft Internet Explorer v4.01 (128 bit encryption)
- Visioneer PaperPort Viewer v5.0
- Adobe Acrobat Viewer v3.01
- MESA cc:Mail Archive Tools and LDAP3
- McAfee Anti-Virus
- NS Elite Plus v3.1 (TN-3270 access to IBM mainframes)

- COLD (OTG)
- RMP desktop applications.

RMP carefully tests all new client software, COTS, and custom applications and maintains software configuration management through a synchronized software release process it developed. Updates to the standard client are made to all desktops via Microsoft's SMS software distribution package.

A.5
Client/Server Architecture

RMP's client/server architecture was established in 1996 to provide users the ability to readily query and download information from a data warehouse. Many RMP users wanted to manipulate and analyze subsets of the data stored centrally at their workstations by way of desktop applications such as Microsoft Excel or Microsoft Access. Until that time, users had to get data off the mainframe systems from the Business Information System's set queries, from standard mainframe reports, or from custom COBOL reports written by information systems (IS) personnel. The complex data structure of RMP's mainframe-based IDMS/R databases and possible performance impacts on mainframe production services precluded direct user access. RMP also wanted to harness the computing power of its desktop PCS to provide a user friendly graphical user interface. Based on its requirements, RMP standardized on Microsoft SQL Server V6.5 running on NT V4.0 Intel-based servers. Information from its mainframe legacy systems was downloaded to relational tables on its SQL server RDBMS and is updated either nightly or weekly. Custom client applications are predominantly written in Visual Basic V5.0.

RMP currently has 10 production RDBMS servers hosting SQL server databases. These servers provide access to more than 930 tables containing more than 20 gigabytes of actual data. RMP's primary data warehouse access system, the Royalty Query System, uses 29 databases with 289 tables containing 14 gigabytes of data.

RMP's current client/server systems can be divided into two categories: COTS and custom systems.

A.6
Computer Output to Laser Disk (COLD) System

This system provides for online storage of mainframe-generated reports. As the mainframe finishes producing the report, it is automatically downloaded to an NT server, where the report is run through an extraction process. The extraction process selects key index fields from the reports and writes them to an SQL server database. It then compresses the actual mainframe report pages and writes those to an optical jukebox.

End users have the ability to query these reports using a desktop Application Extender (AEX). Queried information can be printed, stored as text data, e-mailed, or put into a word processing or spreadsheet application. The system has been in full production since October 1, 1995, and has the capacity to store 5 years worth of data.

A.7
Document Management

A source document imaging system replaced the LaserData system with an open system (Viewstar) based on Microsoft's SQL server database and NT operating system. This system has been fully operational since June 1995. The system currently scans and stores onto optical media all RMP source documents that arrive

in the document processing area. End users have the ability to query into the source document libraries from their desktops (Docview) or through the Internet.

RMP has two document management applications in place: source document scanning and the solid minerals lease imaging and electronic storage application. The electronic Freedom of Information Act (FOIA) project is under development. Planned extensions of document management include oil and gas folder imaging and electronic storage, and the Compliance Verification Division's (CVD) electronic exception folder.

A.8
Electronic Commerce

The MMS Director announced in early 1998 that MMS would soon require 100 percent electronic reporting of regulatory report data by RMP reporters. This announcement was followed by a proposed rule in the April 8, 1998, *Federal Register* requiring 100 percent electronic reporting by all RMP reporters in the near future.

RMP has developed various electronic reporting options over the last several years in an effort to eliminate paper reporting and the associated costs and errors inherent in manually prepared reports. These options include an American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 Electronic Data Interchange (EDI) infrastructure, which eliminated human intervention, accommodated large volumes, and provided an automated workflow process. Another option was an electronic mail system capable of receiving regulatory report data from reporters in RMP-approved flat files. However, as more and more reporters began reporting via electronic mail, weaknesses in this system became apparent.

RMP officials realized that the most efficient, cost-effective way to achieve the 100 percent electronic reporting requirement was to outsource its electronic commerce (EC) services. The EC contractor will be responsible for devising a methodology for collecting regulatory report data electronically from RMP reporters and forwarding that data to RMP in a specific electronic format.

RMP has 27,329 reporters nationwide, primarily in the western United States, who submit 27,929 royalty reports each year. A minority of the reporters submit monthly regulatory report data electronically, but this minority of reporters represents a majority of the total monthly volume. This volume usually occurs during the last 10 days of each month.

The EC data will routinely be submitted to RMP by way of the existing RMP ANSI ASC X12 infrastructure, which offers the following advantages:

- Standardization of reporting inputs

- Data integrity through the use of industry standard ANSI ASC X12 EDI

- Proven VAN reliability

- Confidentiality

- Security including user authentication, non-repudiation, and data encryption

- Automated audit trail

- Established reliable internal controls.

The COTS-based financial system contractor is expected to integrate EC into the revenue accounting process.

A.9
Messaging and Collaboration

In 1998 MMS decided to replace its aging cc:Mail messaging system with an enterprise-wide implementation of Microsoft Exchange and Microsoft Outlook '98. RMP's conversion to Microsoft Exchange will be completed by the end of FY99. Microsoft Exchange and Microsoft Outlook will provide MMS with agency-wide:

- Messaging
- Internet simple mail transfer protocol (SMTP) mail gateway
- Calendar and scheduling
- Encryption and electronic signaturing
- Electronic forms
- Public folders and collaboration
- Gateway to other agency mail systems.

Microsoft Exchange also provides a consistent, robust, and agency-wide infrastructure for message-based application development and workflow.

MMS is implementing a single Microsoft Exchange site topology of 11 Exchange Servers. The Exchange Servers are connected via a dedicated, fully meshed AT&T frame-relay network (with the exception of Anchorage, Alaska, which uses a dedicated 56-kbps circuit). This ensures that other network traffic will not impact Exchange services. All frame ports are 128-kilobytes per second (kbps) partial T-1 circuits that can be upgraded to full T-1 speeds based on traffic requirements.

A.10
Microsoft NT Architecture

RMP has standardized on Microsoft NT Server and its BackOffice Suite of server products. At present RMP has more than 80 NT servers in its network. All servers are running NT 4.0 SP3.

As part of its enterprise-wide implementation of Microsoft Exchange V5.5 and the Microsoft desktop standard, MMS has also standardized on NTs:

- Single master account domain structure for user authentication and security

- Internet name resolution (WINS, DNS)

- IP address management (DHCP)

- Public/private key services

- Internet and Intranet Services.

MMS has a Premier Support agreement with Microsoft to provide support for its Microsoft-based infrastructure and products.

A.11
Internet and Intranet Services

As part of MMS's Internet (www.mms.gov) and Intranet (Pipeline.mms.gov) services, RMP operates and maintains an Internet server and an Intranet server. Both use Microsoft's Internet Information Server V4.0.

The RMP segment of the MMS web contains more than 1,200 documents. It averages more than 2,400 unique visitors per month and 215,000 hits per month. The web site contains information relevant to MMS constituents seeking statistical information, operational handbooks, reporting forms, MMS regulations, reporter announcement letters, interest tables, and RMP studies and pilot projects. It also contains business-related services offered by RMP.

The RMP Intranet segment of the MMS Pipeline contains more than 6,500 web documents. A large online reference library is continually updated with research information for RMP auditors, STRAC auditors, and RMP technicians. All of the major RMP divisions have web sites for their own internal operations and for sharing information common to other RMP offices. Primarily RMP and STRAC compliance staff use the site as a source of reference documents. The web site averages more than 550 users and 100,000 hits per month.

Future enhancements will include secured access to more of RMP's legacy systems such as COLD, mainframe-based AFS data, integration with MMS BackOffice applications, and other RMP operational applications in a secured environment. Additional applications will include data collection for internal use, registration applications using web forms, workflow, and discussion groups. FOIA information will become available on RMP's web site in 1999. Federal paperwork reduction efforts will require that Government agencies allow completion and submission of forms via the Internet.

B RMP Reference Materials

The following documents are materials used to support this corporate capabilities request.

- RMP's *Road Map to the 21st Century*
- RMP's *Preliminary Design Concepts*
- RMP's *Financial Management Recommendations*
- *JFMIP Standards*.

These documents can be furnished upon request and are available at the Universal Resource Locater (URL):

http://www.rmp.mms.gov/wascproc1.htm

C Glossary

AEX	Application Extender
AFS	Auditing and Financial System
AMS/OC	American Management Systems/Operations Corporation
ANSI	American National Standards Institute
ASC	Accredited Standards Committee
BIA	Bureau of Indian Affairs
BIS	Business Information System
BLM	Bureau of Land Management
CMOS	Complimentary Metal Oxide Semiconductor
COLD	Computer Output to Laser Disk
COTS	Commercial off-the-shelf
CPU	Central Processing Unit
CRD	Common Reference Database
CVD	Compliance Verification Division
DASD	Direct Access Storage Device
DOI	Department of Interior
DOINET	Department of Interior's Network
EC	Electronic Commerce
ECS	Electronic Certification System
EDI	Electronic Data Interchange
EFT	Electronic Funds Transfer
EMC	Egan Marino Corporation
EOP	Explanation of Payment
FOGRMA	Federal Oil and Gas Royalty Management Act
FOIA	Freedom of Information Act
FY	Fiscal Year
GAO	General Accounting Office
GIS	Geographic Information System
IBM	International Business Machines
IRS	Internal Revenue Service
IS	Information Systems
IT	Information Technology
JFMIP	Joint Financial Management Improvement Program

KBPS	Kilobytes per second
LAN	Local Area Network
MAN	Metropolitan Area Network
MBPS	Megabits Per Second
MMS	Minerals Management Service
O&M	Operations and Maintenance
OGOR	Oil and Gas Operations Report
OLAP	On-Line Analytical Processing
OMB	Office of Management and Budget
OMM	Office of Minerals Management
OPAC	On-Line Payment and Collection
OPM	Office of Personnel Management
OTFM	Office of Trust Funds Management
PAAS	Production Accounting and Auditing System
PEC	Performance Engineering Corporation
RAID	Redundant Array of Independent Disks
RDBMS	Relational Database Management System
RFP	Request for Proposal
RMP	Royalty Management Program
RQS	RMP Query System
RSFA	Royalty Simplification and Fairness Act
SGL	Standard General Ledger
SMFR	Solid Minerals Facility Report
SMOR	Solid Mineral Operations Report
SMS	Systems Management Server
SMTP	Simple Mail Transfer Protocol
STRAC	State and Tribal Royalty Audit Committee
TCP/IP	Transmission Control Protocol/Internet Protocol
TIN	Taxpayer Identification Number
URL	Universal Resource Locater
VPN	Virtual Private Network
WAN	Wide Area Network